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EXAMINER
LU, KUEN S

ART UNIT	PAPER NUMBER
2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/697,820	COCHRAN ET AL.
	Examiner	Art Unit
	Kuen S. Lu	2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-32</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/29/2003</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. This Action is responsive to Applicant's Application, filed October 29, 2003.

Please note Claims 1-32 are pending.

Information Disclosure Statement

2. The information disclosure statement filed October 29, 2003 is considered as

electronically signed PTO-1449 attached.

Drawings

3. The drawings filed October 29, 2003 have been accepted.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
requirements of this title.

4.1. Claims 1, 9, 17, 22 and 28 are rejected because the claimed invention is not

supported by either an asserted or a well-established utility. The claims are lack of

patentable utility.

As per claims 1, 9, 17, 22 and 28, which claim database system, articles of

manufacturer and storage elements, for transferring or mirroring logical objects to

remote storage in a database application. However, there is no tangible use or useful

result asserted by the limitations of the claims and an ordinary skilled in the art clearly

would neither appreciate the claimed invention nor know how to use the subject matter

as claimed. For example, as Examiner specifically noted, that "enable destaging of the

logical object to the storage on receipt of all fragments" in each claim does not produce

useful result because "enable destaging" is not the same as "destaging" and does not

necessarily perform a destaging step.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.1. Claim1, 9, 17, 22 and 28 are rejected under 35 U.S.C. 101 because the

claimed invention is not supported by either a an asserted utility or a well established

utility.

5.2. Claims 1, 9, 17, 22 and 28 are also rejected under 35 U.S.C. 112, first paragraph.

Specifically, since the claimed invention is not supported by either an asserted utility or

a well established utility for the reasons set forth above, one skilled in the art clearly

would not know how to use the claimed invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.1. Claims 1, 9, 17, 22 and 28 are rejected under 35 U.S.C. 112, second

paragraph. The claim is generally narrative and indefinite, failing to conform with

current U.S. practice. It appears to be a literal translation into English from a foreign

document and replete with grammatical and idiomatic errors. In the claims,

concerning the device, process, protocol or code "capable of" performing some

function or being executable, it is ambiguous where the function is actually

performed or the protocol is actually executed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7.1. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baird:

Oracle 8i Data Guard Concepts, Administration, and Installation Guide, Release 3.0,

October 2001, Oracle® (hereafter "OraDgd") in view of Bobrowski et al.: Oracle7™

Server Concepts, Release 7.3, February 1996, Oracle® (hereafter "Ora734").

As per claim 1, OraDgd teaches "A database system capable of executing a

database application that transfers a logical object in multiple fragments, the database

system" (See Fig. 1-1 and Pages 1-8 and 1-9 wherein archived redo logs of a

production database are shipped to standby database site and applied database

changes to the standby database) comprising:

"a main storage site" (See Page 1-16 disk space on both production and standby

database sites are monitored); and

"a remote storage site capable of linking to the main storage site and mirroring

information stored in the main storage site, the remote storage site including a storage

and a cache sidefile" (See Page 1-35 OraDgd teaches a remote mirror callout feature

allowing mirroring of online redo logs and at Pages 1-33 and 1-34 where a cache file is

implemented at the standby database site to store information for restarting and rolling

back failover and switchover).

OraDgd does not explicitly teach that the remote cache sidefile is "divided into a

plurality of array sidefile recordsets".

However, Ora734, at Pages 22-17 and 24-15, teaches log writer writing commit

record immediately into redo log buffer where atomic write of a database transaction

record is assigned with an entry number, the system change number and each redo log

file includes a plurality of transaction records.

It would have been obvious to one having ordinary skill in the art at the time of the

Applicant's invention was made to combine the teaching of Ora734 with the OraDgd

reference by utilizing cache file for storing and mirroring online redo logs because both

references are directed to database implementation and the combined teaching would

have efficiently achieved a no-data-loss failover since online redo logs are mirrored at

the remote database site for being available anytime to be applied to the standby

database in order to synchronize standby database with production database (See

OraDgd: Page 1-24).

The combined teaching of the Ora734 and OraDgd references further teaches the

following:

"a main protocol executable on the main storage site and capable of including

information indicative of logical object fragment commencement and completion in the

multiple fragment database application transfer" (See OraDgd: Page 1-9 shipper at the

production host site ships archived redo logs to the standby database site wherein the

time archive log file created is indicated to and part of file attributes, and further at last

paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is

a copy of online redo logs preserving system change number of each entry, along with

time data of the entry, serving as bases for database recovery); and

"a remote protocol executable on the remote storage site and capable of controlling the

cache sidefile to cache the multiple fragments as received and to enable destaging of

the logical object to the storage on receipt of all fragments" (See OraDgd: Page 1-9

Applier at the remote standby database site applies changes from each archived redo

logs to the standby database wherein the time archive log file created is indicated to

and part of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of

Ora734 reference teaches that archived log is a copy of online redo logs preserving

system change number of each entry, along with time data of the entry, serving as

bases for database recovery).

As per claim 9, OraDgd teaches "An article of manufacture" (See Fig. 1-1 and Page

1-8 where Oracle8i Data Guard Architecture is an article of manufacture" comprising:

"a controller usable medium having a computable readable program code embodied therein for executing in a database system that runs a database application for mirroring a logical object in multiple fragments from a main storage site to a remote storage site, the computable readable program code" (See Pages 1-8, 1-9 and 1-35 where database is replicated to remote standby database site and OraDgd further teaches a remote mirror callout feature allowing mirroring of online redo logs) further comprising:

"a code capable of causing the controller to interface with the database application that links and mirrors data between the main storage site and the remote storage site, the remote storage site including a storage and a cache sidefile" (See Page 1-35 OraDgd teaches a remote mirror callout feature allowing mirroring of online redo logs and at Pages 1-33 and 1-34 where a cache file is implemented at the standby database site to store information for restarting and rolling back failover and switchover).

OraDgd does not explicitly teach that the remote cache sidefile is "divided into a plurality of array sidefile recordsets".

However, Ora734, at Pages 22-17 and 24-15, teaches log writer writing commit record immediately into redo log buffer where atomic write of a database transaction record is assigned with an entry number, the system change number and each redo log file includes a plurality of transaction records.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention was made to combine the teaching of Ora734 with the OraDgd reference by utilizing cache file for storing and mirroring online redo logs because both references are directed to database implementation and the combined teaching would

have efficiently achieved a no-data-loss failover since online redo logs are mirrored at

the remote database site for being available anytime to be applied to the standby

database in order to synchronize standby database with production database (See

OraDgd: Page 1-24).

The combined teaching of the Ora734 and OraDgd references further teaches the

following:

"a code capable of causing the controller to create and deploy control information

indicative of logical object fragment commencement and completion in the multiple

fragment database application transfer" (See OraDgd: Page 1-9 shipper at the

production host site ships archived redo logs to the standby database site wherein the

time archive log file created is indicated to and part of file attributes, and further at last

paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is

a copy of online redo logs preserving system change number of each entry, along with

time data of the entry, serving as bases for database recovery);

"the control information controlling the cache sidefile to cache the multiple fragments as

received and to enable destaging of the logical object to the storage on receipt of all

fragments" (See OraDgd: Page 1-9 Applier at the remote standby database site applies

changes from each archived redo logs to the standby database wherein the time

archive log file created is indicated to and part of file attributes, and further at last

paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is

a copy of online redo logs preserving system change number of each entry, along with

time data of the entry, serving as bases for database recovery).

As per claim 17. OraDgd teaches "An article of manufacture" (See Fig. 1-1 and

Pages 1-8 and 1-9 wherein archived redo logs of a production database are shipped to

standby database site and applied database changes to the standby database)

comprising:

a controller usable medium having a computable readable program code embodied

therein for executing in a database system that runs a database application for mirroring

a logical object in multiple fragments from a main storage site to a remote storage site,

the computable readable program code" (See Pages 1-8, 1-9 and 1-35 where database

is replicated to remote standby database site and OraDgd further teaches a remote

mirror callout feature allowing mirroring of online redo logs) further comprising:

"a code capable of causing the controller to control storage of the logical object multiple

fragments in a cache sidefile" (See Page 1-35 OraDgd teaches a remote mirror callout

feature allowing mirroring of online redo logs and at Pages 1-33 and 1-34 where a

cache file is implemented at the standby database site to store information for restarting

and rolling back failover and switchover).

OraDgd does not explicitly teach that the remote cache sidefile is "divided into a

plurality of array sidefile recordsets".

However, Ora734, at Pages 22-17 and 24-15, teaches log writer writing commit

record immediately into redo log buffer where atomic write of a database transaction

record is assigned with an entry number, the system change number and each redo log

file includes a plurality of transaction records.

It would have been obvious to one having ordinary skill in the art at the time of the

Applicant's invention was made to combine the teaching of Ora734 with the OraDgd

reference by utilizing cache file for storing and mirroring online redo logs because both

references are directed to database implementation and the combined teaching would

have efficiently achieved a no-data-loss failover since online redo logs are mirrored at

the remote database site for being available anytime to be applied to the standby

database in order to synchronize standby database with production database (See

OraDgd: Page 1-24).

The combined teaching of the Ora734 and OraDgd references further teaches the

following:

"a code capable of causing the controller to receive the logical object in multiple

fragment transfers in combination with control information indicative of logical object

fragment commencement and completion" (See OraDgd: Page 1-9 shipper at the

production host site ships archived redo logs to the standby database site wherein the

time archive log file created is indicated to and part of file attributes, and further at last

paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is

a copy of online redo logs preserving system change number of each entry, along with

time data of the entry, serving as bases for database recovery); and

"a code capable of causing the controller to cache the multiple fragments as received

and to enable destaging of the logical object to the storage on receipt of all fragments"

(See OraDgd: Page 1-9 Applier at the remote standby database site applies changes

from each archived redo logs to the standby database wherein the time archive log file

created is indicated to and part of file attributes, and further at last paragraphs of Pages

22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo

logs preserving system change number of each entry, along with time data of the entry,

serving as bases for database recovery).

As per claim 22, OraDgd teaches "A storage element readable by a controller

tangibly embodying a program of instructions executable by the controller to perform

method acts for executing in a database system that runs a database application for

mirroring a logical object in multiple fragments from a main storage site to a remote

storage site" (See Pages 1-8, 1-9 and 1-35 where database is replicated to remote

standby database site and OraDgd further teaches a remote mirror callout feature

allowing mirroring of online redo logs), the method acts comprising:

"controlling storage of the logical object multiple fragments in a cache sidefile" (See

Page 1-35 OraDgd teaches a remote mirror callout feature allowing mirroring of online

redo logs and at Pages 1-33 and 1-34 where a cache file is implemented at the standby

database site to store information for restarting and rolling back failover and switchover

).

OraDgd does not explicitly teach that the remote cache sidefile is "divided into a

plurality of array sidefile recordsets".

However, Ora734, at Pages 22-17 and 24-15, teaches log writer writing commit

record immediately into redo log buffer where atomic write of a database transaction

record is assigned with an entry number, the system change number and each redo log file includes a plurality of transaction records.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention was made to combine the teaching of Ora734 with the OraDgd reference by utilizing cache file for storing and mirroring online redo logs because both references are directed to database implementation and the combined teaching would have efficiently achieved a no-data-loss failover since online redo logs are mirrored at the remote database site for being available anytime to be applied to the standby database in order to synchronize standby database with production database (See OraDgd: Page 1-24).

The combined teaching of the Ora734 and OraDgd references further teaches the following:

"receiving the logical object in multiple fragment transfers in combination with control information indicative of logical object fragment commencement and completion" (See OraDgd: Page 1-9 shipper at the production host site ships archived redo logs to the standby database site wherein the time archive log file created is indicated to and part of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo logs preserving system change number of each entry, along with time data of the entry, serving as bases for database recovery); and

"caching the multiple fragments as received and to enable destaging of the logical object to the storage on receipt of all fragments" (See OraDgd: Page 1-9 Applier at the

remote standby database site applies changes from each archived redo logs to the

standby database wherein the time archive log file created is indicated to and part of file

attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734 reference

teaches that archived log is a copy of online redo logs preserving system change

number of each entry, along with time data of the entry, serving as bases for database

recovery).

As per claim 28, OraDgd teaches "A storage element readable by a controller

tangibly embodying a program of instructions executable by the controller to perform

method acts for executing in a database system that runs a database application for

mirroring a logical object in multiple fragments from a main storage site to a remote

storage site" (See Pages 1-8, 1-9 and 1-35 where database is replicated to remote

standby database site and OraDgd further teaches a remote mirror callout feature

allowing mirroring of online redo logs), the method acts comprising:

"interfacing with the database application that links and mirrors data between the main

storage site and the remote storage site, the remote storage site including a storage

and a cache sidefile(See Page 1-35 OraDgd teaches a remote mirror callout feature

allowing mirroring of online redo logs and at Pages 1-33 and 1-34 where a cache file is

implemented at the standby database site to store information for restarting and rolling

back failover and switchover).

OraDgd does not explicitly teach that the remote cache sidefile is "divided into a

plurality of array sidefile recordsets".

However, Ora734, at Pages 22-17 and 24-15, teaches log writer writing commit record immediately into redo log buffer where atomic write of a database transaction record is assigned with an entry number, the system change number and each redo log file includes a plurality of transaction records.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention was made to combine the teaching of Ora734 with the OraDgd reference by utilizing cache file for storing and mirroring online redo logs because both references are directed to database implementation and the combined teaching would have efficiently achieved a no-data-loss failover since online redo logs are mirrored at the remote database site for being available anytime to be applied to the standby database in order to synchronize standby database with production database (See OraDgd: Page 1-24).

The combined teaching of the Ora734 and OraDgd references further teaches the following:

"creating and deploying control information indicative of logical object fragment commencement and completion in the multiple fragment database application transfer" (See OraDgd: Page 1-9 shipper at the production host site ships archived redo logs to the standby database site wherein the time archive log file created is indicated to and part of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo logs preserving system change number of each entry, along with time data of the entry, serving as bases for database recovery);

"the control information controlling the cache sidefile to cache the multiple fragments as received and to enable destaging of the logical object to the storage on receipt of all fragments" (See OraDgd: Page 1-9 Applier at the remote standby database site applies changes from each archived redo logs to the standby database wherein the time archive log file created is indicated to and part of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo logs preserving system change number of each entry, along with time data of the entry, serving as bases for database recovery).

As per claims 2, 18 and 29, the combined teaching of the Ora734 and OraDgd references further teaches "the main protocol includes information indicative of logical object fragment commencement and completion using a technique selected from among a group" (See OraDgd: Page 1-9 shipper at the production host site ships archived redo logs to the standby database site wherein the time archive log file created is indicated to and part of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo logs preserving system change number of each entry, along with time data of the entry, serving as bases for database recovery) including:

"(1) explicitly identifying starting and ending fragments" (See Ora734: Pages 12-5, 22-6 and 24-15 where log writer writes system change numbers to on-line redo log which may be explicitly used to reconstruct all changes made to the database), and

(2) implicitly indicating either of the starting fragment and the ending fragment" (See

Ora734: Page 22-7 where log writer writes switches to next online redo log file when

current file is filled which implicitly indicating a minimum and a maximum system

change numbers in each file).

As per claims 10 and 23, Ora734 further teaches "creating control information

indicative of logical object fragment commencement and completion using a technique

selected from among a group" (See Ora734: Page 22-7 where system change numbers

along with transaction entries are created in the online redo log) including:

"(1) explicitly identifying starting and ending fragments" (See Ora734: Pages 12-5, 22-6

and 24-15 where log writer writes system change numbers to on-line redo log which

may be explicitly used to reconstruct all changes made to the database), and "(2)

implicitly indicating either of the starting fragment and the ending fragment" (See

Ora734: Page 22-7 where log writer writes switches to next online redo log file when

current file is filled which implicitly indicating a minimum and a maximum system

change numbers in each file).

As per claims 3 and 11, Ora734 further teaches "an address translation process that

translates a logical address to a list of physical addresses" (See Ora734: Page 6-9

where rowid of a database record translate the logical address of a record into physical

address).

As per claims 4, 12 and 24, Ora734 further teaches "an address translation process

that resolves a virtual write address of the database application into a pick list of actual

physical media writes

associated with the logical object" (See Ora734: Page 6-9 where rowid is assigned to

database record).

As per claims 5, 13 and 25, Ora734 further teaches "a process capable of creating a

control message for communication to the remote protocol that instructs individual

physical storage elements to operate on the multiple physical writes as a single object

entity so that all or none is destaged to the storage" (See OraDgd: Page 1-20, 1-21, 4-

18 and 4-19 where messages are sent to production and standby databases when

normal mode commands are processed, applier invokes shipper to ship archived logs,

applier check archived logs and applied the logs to the standby database).

As per claims 6, 14 and 26, the combined teaching of the Ora734 and OraDgd

references further teaches the following:

"a process capable of receiving an application request to write the logical object of a

specified length to a specified virtualized storage address" (See OraDgd: Page 1-28

where all archived redo logs and online redo logs are applied to the database, and

Ora734: last paragraphs of Pages 22-17 and 24-15 system change numbers of redo log

entries and time may be specified for the length of database recovery);

"a process capable of converting the virtualized write address and resolving the transfer

length to designate at least one physical address in at least one physical storage device

for transferring the logical object in fragments" (See OraDgd: Pages 1-16 and 2-7 where

archived log files are compressed and shipped to standby database site, the standby

database site uncompressed the file and applies the file to standby database);

"a process capable of sending a first control message to the at least one physical

storage device that delineates the start of a logical object that is to be held in a remote

mirror cache for destaging" (See OraDgd: Page 1-9 shipper at the production host site

ships archived redo logs to the standby database site wherein the time archive log file

created is indicated to and part of file attributes, and further at last paragraphs of Pages

22-17 and 24-15 of Ora734 reference teaches that archived log is a copy of online redo

logs preserving system change number of each entry, along with time data of the entry,

serving as bases for database recovery); and

"a process capable of sending a second control message that delineates the end of the

logical object so that the mirror cache is destaged to the at least one physical storage

device, no portion of the logical object fragments being otherwise destaged" (See

OraDgd: Page 1-9 shipper at the production host site ships archived redo logs to the

standby database site wherein the time archive log file created is indicated to and part

of file attributes, and further at last paragraphs of Pages 22-17 and 24-15 of Ora734

reference teaches that archived log is a copy of online redo logs preserving system

change number of each entry, along with time data of the entry, serving as bases for

database recovery).

As per claims 7, 15, 20, 27 and 31, Ora734 further teaches "information is replicated from the main storage site to the remote storage site using a technique selected from among a group including: (1) synchronous data replication and (2) asynchronous data replication" (See Pages 15-3 and 24-5 where synchronous data replication and asynchronous I/O operations are supported).

As per claims 8, 16, 21 and 32, the combined teaching of the Ora734 and OraDgd references further teaches "the logical object multiple fragments are controllably destaged in all-or-none fashion to all devices in a consistency group" (See OraDgd: Pages 1-28 and 2-34 where shipper and applier work consistently and all archived redo logs and online redo logs are applied to the database, and Ora734: last paragraphs of Pages 22-17 and 24-15 system change numbers of redo log entries and time may be specified for the length of database recovery).

As per claims 19 and 30, the combined teaching of the Ora734 and OraDgd references further teaches "a code capable of causing the controller to track order of fragment updating between the main storage site and the remote storage site including updating of the sidefile recordsets" (See OraDgd: Page 1-20, 1-21, 4-18 and 4-19 where messages are sent to production and standby databases when normal mode commands are processed, applier invokes shipper to ship archived logs, applier check archived logs and applied the logs to the standby database, and Ora734: Page 22-7

where system change numbers along with transaction entries are created in the online

redo log).

Conclusions

8. The prior art made of record

U. Baird: Oracle 8i Data Guard Concepts, Administration, and Installation Guide,

Release 3.0, October 2001, Oracle®

V. Bobrowski et al.: Oracle7™ Server Concepts, Release 7.3, February 1996,

Oracle®

The prior art made of record and not relied upon is considered pertinent to Applicant's

disclosure.

A. U.S. Patent Application 2004/0230859

B. U.S. Patent 6,735,636

C. U.S. Patent 6,636,908

Contact information

9. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kuen S Lu whose telephone number is (571) 272-

4114. The examiner can normally be reached on Monday-Friday (8:00 am-5:00 pm).

If attempts to reach the examiner by telephone pre unsuccessful, the examiner's

Supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the Patent
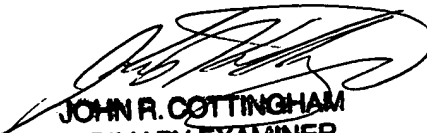
Application Information Retrieval (PAIR) system. Status information for Page 13

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 886-217-9197 (toll-free).

Kuen S. Lu

Patent Examiner

May 31, 2006

JOHN R. COTTINGHAM
PRIMARY EXAMINER